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EXAMINER
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ZEMEL, IRINA SOPJIA

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1711

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**BEFORE THE BOARD OF PATENT APPEALS  
AND INTERFERENCES**

Application Number: 10/004,978  
Filing Date: December 03, 2001  
Appellant(s): SHIPING, MA

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Marina T. Larson  
For Appellant

**EXAMINER'S ANSWER**

**MAILED**

**NOV 15 2005**

**GROUP 1700**

This is in response to the appeal brief filed August 23, 2005 appealing from the Office action mailed 9-20-2004.

**(1) Real Party in Interest**

A statement identifying by name the real party in interest is contained in the brief.

**(2) Related Appeals and Interferences**

The examiner is not aware of any related appeals, interferences, or judicial proceedings which will directly affect or be directly affected by or have a bearing on the Board's decision in the pending appeal.

**(3) Status of Claims**

The statement of the status of claims contained in the brief is correct.

**(4) Status of Amendments After Final**

The appellant's statement of the status of amendments after final rejection contained in the brief is correct.

**(5) Summary of Claimed Subject Matter**

The summary of claimed subject matter contained in the brief is correct.

**(7) Claims Appendix**

The copy of the appealed claims contained in the Appendix to the brief is correct.

**(8) Evidence Relied Upon**

6184312	Yamamoto et al.,	2-2001
5658974	Fuhr et al.,	8-1997

**(9) Grounds of Rejection**

The following ground(s) of rejection are applicable to the appealed claims:

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Claims 1, 2, 4-11, 16-19 and 21 are rejected under 35 U.S.C. 103(a) as being unpatentable over Yamamoto et al., (US 6,184,312) in view of Fuhr et al., (US 5,658,974).

Yamamoto describes a resin composition comprising (A) an aromatic polycarbonate or an aromatic epoxy, which fully corresponds to the claimed component a, and (B) an organosiloxane containing phenyl or alkyl radicals (abstract; col. 2, line 57 to col. 3, line 6). Organosiloxane is used in the composition at 0.1 to 10 parts by wt (col. 3, lines 4-6). Organosiloxanes in col. 6 fully read on those that are instantly claimed in both independent claims 1 and 2. See formula 1 in column 2, line 65, and detail description of the siloxanes in column 6. Weight average molecular weight of these organosiloxanes is 410 to 2000 (col. 7, lines 40-44). Yamamoto does not mention (claimed) phosphoric ester (component (b) of instant claims 1 or 2. Resins besides polycarbonate, that are also useful in combination with the aromatic polycarbonates (or aromatic epoxides) , are given in col. 3, lines 23-28.

Fuhr discloses flameproofed polycarbonate molding compounds comprising (A) aromatic polycarbonate, (D) silicone resin and (E) phosphorous compounds. The phosphoric compounds disclosed in Fuhr completely correspond to the claimed component b (as per claim 1) or c (as per claim 2), and are added to the compositions in the amounts corresponding to the claimed amounts based on either the polycarbonate or the combined thermoplastic component. See column 8, lines 40-63 of Fuhr and illustrative examples. Fuhr expressly teaches that addition of the disclosed phosphorous compounds to compositions based on aromatic polycarbonates and

containing silicone resins results in significant improvement of flame retardant properties of the resulting polycarbonate compositions. See examples presented in Tables 1 and 2. Further, from the teachings of Yamamoto and Fuhr, it is further clear that addition of the phosphorous compounds to compositions based on aromatic polycarbonates that do not contain siloxane resin also results in improved flame proofed properties of the aromatic polycarbonate based compositions. See for example example CE6 of Yamamoto (table 1) which reports UL94 rating for aromatic polycarbonate as "burned", while compositions containing aromatic polycarbonate similar to the one used by Yamamoto in combination with the phosphorous compound has UL 94 rating of V2 as reported for comparison examples 1 and 2 of Fuhr in table 3 in column 12 of Fuhr.

Therefore, it would therefore, have obvious to add to the composition of Yamamoto, the phosphorous compounds of Fuhr with reasonable expectation to obtain a resulting product with significantly improved flame proofing properties absent showing of unexpected results that can be attributed to addition of the claimed phosphorous compounds to the compositions disclosed by Yamamoto.

#### **Grounds of Rejection Not on Review.**

Claims 3 and 20 are rejected under 35 U.S.C. 103(a) as being unpatentable over Yamamoto et al (US 6,184,312) in view of Fuhr et al (US 5,658,974) as applied to claims 1 and 18 resp. above, and further in view of JP 58,076,447 (Abstract ).

Claim 12 is rejected under 35 U.S.C. 103(a) as being unpatentable over

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Yamamoto et al (US 6,184,312) in view of Fuhr et al (US 5,658,974) as applied to claim 1 above, and further in view of Wittmann et al (US 5,030,675).

Claim 13 is rejected under 35 U.S.C. 103(a) as being unpatentable over Yamamoto et al (US 6,184,312) in view of Fuhr et al (US 5,658,974) as applied to claim 1 above, and further in view of Umeda et al (US 5,449,710).

Claims 14 and 15 are rejected under 35 U.S.C. 103(a) as being unpatentable over Yamamoto et al (US 6,184,312) in view of Fuhr et al (US 5,658,974) as applied to claim 1 above, and further in view of Choi et al (US 5,087,521 ) or Narushima et al (US 3,948,836).

#### **(10) Response to Argument**

Applicants argue that modification proposed by the examiner, i.e., addition of the claimed phosphorous compound disclosed by Fuhr to the compositions disclosed by Yamamoto is not consistent with the references, and thus, fails to meet the standards required to support the obviousness rejection.

The appellants state that Yamamoto specifically refers to exclusion of phosphorus as a flamefretardant. Since it is phosphorous compounds, not phosphorus per se, that are used in the art as flame retardants, this portion of Yamamoto is fairly understood as a teaching away from the combination that the Examiner asserts would have been obvious.

The examiner disagrees with such interpretation of the Yamamoto reference. While, indeed, the reference states that high flame retardance can be achieved without the presence of phosphorous, the reference does not teach that phosphorous (or other

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flame retardants) have to be or even should be excluded. The teachings in column 3, lines 7-13, simply refers to the beneficial use of the siloxanes, and does not preclude or teaches away from use of other flame retardants.

The appellants further state that, while Yamamoto mentions organosulfones as possible supplemental flame retardants, phosphorous compounds are not mentioned. Thus, there is no apparent suggestion in the art itself to make the combination proposed by the Examiner.

The examiner never alleged that the Yamamoto reference suggest adding the claimed phosphorous compounds. If that was the case, the rejection of the claimed invention would have been under that one reference had the combined teachings of two reference. As far as the appellants allegation that there is no suggestion in the art itself to make the proposed combination, this conclusion is clearly incorrect. There may not be a suggestion to make the proposed change in the primary reference alone. However, the rejection of the independent claims 1 and 2 is made over the combined teachings of two references, i.e., Yamamoto and Fuhr, and the combined teaching of the references clearly provide the proposed modification as discussed above. In response to applicant's arguments against the Yamamoto reference individually, one cannot show nonobviousness by attacking references individually where the rejections are based on combinations of references. See *In re Keller*, 642 F.2d 413, 208 USPQ 871 (CCPA 1981); *In re Merck & Co.*, 800 F.2d 1091, 231 USPQ 375 (Fed. Cir. 1986). The art taken as whole clearly provides motivation for the proposed modification.

The appellants further argue that, Fuhr does not teach that the phosphorus compounds by themselves are sufficient to result in a composition that is self-extinguishing. Rather, Fuhr teaches that the combination of specific types of phosphorus compounds and specific types of silicone resins produce this result. The phosphorus compound alone is not sufficient (Fuhr, Table 3, Comparison 1 and 2).

Again, the applicants attack one reference alone and not the teachings of the cited references as whole. As discussed above, even though more beneficial or improved results are obtained when both the phosphorous compounds and the siloxane compound are present in the aromatic polycarbonate based composition, addition of the phosphorous compound by itself still results in significant improvement of flame retardant properties. As discussed above, without any flame retardant, the aromatic polycarbonate is completely burned (as per teachings of Yamamoto), while addition of the phosphorous compound, even without the siloxane compounds, results in improved flame retardance properties, as per comparative examples of Fuhr discussed by the appellants.

The appellants further argue that the silicone resin of Fuhr and the organosiloxane of Yamamoto have different properties. The substituent groups specified in the formulas are different or present in different relative amounts. The silicone resin of Fuhr is a solid. (Fuhr, Col. 8, lines 11-12). In contrast, organosiloxanes 1-8 and 10 of Yamamoto are all liquids. Organosiloxane 9 of Yamamoto which is said to be a solid is used only in a comparative example, and achieves only a V1 rating in the UL-94 flame retardance test. Thus, the Examiner has not provided any reason why the



person skilled in the art would expect the organosiloxane of Yamamoto to provide the same type of interaction with phosphorus compounds as the silicone resin of Fuhr.

First of all, it is irrelevant whether the examiner provided reasons why it would expect the organosiloxane of Yamamoto to provide the same type of interaction with phosphorus compounds as the silicone resin of Fuhr. The examiner provided reasons why it would have been expected that addition of the phosphorous compounds of Fuhr the compositions disclosed by Yamamoto would result in improved flame retardan properties of the composition of Yamamoto. The reason is that compositions of both references are based, and, in fact, contain as the major potion of it, same aromatic polycarbonate resins, and the phosphorous compound, as discussed above, provides beneficial improvemens in flame retardancy of aromatic polybarbonates.

Second of all, even though, the silicone resin of Fuhr and the organosiloxane of Yamamoto may have different properties, as discussed by the appellants, the compositions containing solid siloxanes in combination with the phosophorous compounds still achieve a better rating(V1) than compositions containing phosphorous compounds alone. (V2). Thus, there is reasonable expectation that addition of the phosophorous compounds to the compositions of Yamamoto and containing solid siloxanes would have somewhat improved fame retardancy. Since there is no side by side comparative results that use exactly the same polycarbonates and same solid siloxanes in Yamamoto and Furh references the actual improvement achieved by addition of the phosphorous compounds to the compositions of Yamamoto may not

have been predicted to the exact degree, but some improvement is clearly would have been expected.

Thus, the prima facie case of obviousness have been established and the motivations for the proposed changes provided.

The appellants further argue that the combination of references, in their opinion, "looks somewhat more plausible if one takes Fuhr as the primary reference, and considers using the organosiloxane of Yamamoto in place of the silicone resin of Fuhr, since Fuhr contains no negative teaching against the use of phosphorus. However, this rejection still suffers because the Examiner has made no apparent consideration of the differences between the organosiloxane and the silicone resin, and thus no reason why a person skilled in the art would consider them to be interchangeable." See the paragraph bridging pages 5 and 6 of the Appellants' Brief.

The examiner will not answer these argument since the arguments are NOT relevant to the outstanding rejection. The rejection was NOT made over Fuhr in view of Yamamoto, thus failure by the examiner to establish prima facie obviousness for such a rejection is irrelevant to any grounds for rejection ever presented in this case throughout the prosecution of the case, and, specifically, is irrelevant to the ground of rejection to be reviewed on Appeal.

The appellants further present the arguments that Fuhr is the closest prior art and that the appellants presented evidence of unexpected results.

The examiner strongly disagree. Throughout the prosecution of the case the Yamomoto compositions were held as the closest prior art, i.e. the compositions that

have the same polycarbonate and the same siloxane components. In order to establish convincing showing of unexpected results, the applicants should have compared the compositions of Yamamoto lacking the phosphorous compound with the claimed compositions that result in addition of the phosphorous compound to the compositions of Yamamoto. The appellants have not done so. The record has only one comparative result, namely comparative example 7 in the specification, comparing a composition not having a phosphorous compound(similar to the compositions of Yamamoto) with other compositions containing the phosphorous compounds. As compared to this single result, the showing of alleged unexpected results, first of all, is not commensurate in scope with the claimed invention, since the comparison is made with compositions having much higher amounts of the phosphorous compound (roughly 3 parts of the phosphorous compound per 100 parts of the resin), while the lower limit of the claimed phosphorous compound is as low as 0.5 pph resin. Furthermore, as discussed above, improvement in flame retardancy is expected upon addition of the phosphorous compound, since, as discussed above, Furh disclosed improvement of rating from V2 to V1 in comparative example 9 by addition of the phosphorous compound to the compositions containing solid siloxane.

The appellant chosen to hold the Furh as the closest prior art and provide comparative results by either substituting the siloxane disclosed in Furh for the claimed siloxane (which, by the way, fully correspond to the siloxane disclosed in Yamamoto), or omitting the siloxane at all as shown in the Second declaration under 37 CFR 1.132 dated May 30, 2005 and summarized in the table on page 8 of the Brief. Once again,

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the examiner wishes to point out, that the outstanding rejection to be reviewed on appeal is an obviousness rejection over Yamamoto in view of Furh, and not Furh in view of Yamamoto. While the applicants think that rejection over Furth in view of Yamamoto would have been a better rejection, the fact of the case are such that the actual rejection is Yamamoto in view of Furh, at this is the rejection that have to be addressed, including showing of unexpected results. In the absence of showinh of unexpected results that compare the compositions of the primary reference with the claimed compositions, the showing can not be considered a conclusive evidence of unexpected results. Fuethrmore, even if, arguendo, one would agree that Furh is the closest prior art (which, as discussed above is not the case), the showing of alleged unexpected results is no commensurate in scope with the claimed invention. The results only demonstrate improvements for compositions containing 4 parts of the phosphorous compound and 1 part of the silicone compound per 84 parts of the polycarbonate, which is roughly 4.6 and 1.2 parts of the components respectively per 100 parts of the polycarbonate. Meanwhile, the invention claims as low as 0.5 parts of the phosphorous compound and 0.05 parts of the silicone, respectively. There is nothing on the record that shows that unexpected improvement would be realized in compositions containing those amounts of the phosphorous compound and the silicone.

Therefore, the alleged showing of unexpected results fails to establish conclusively that indeed that claimed compositions exhibit unexpected improvements and/or the improvement are shown for the entire scope of the claimed invention.

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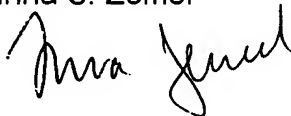
**(11) Related Proceeding(s) Appendix**

No decision rendered by a court or the Board is identified by the examiner in the Related Appeals and Interferences section of this examiner's answer.

For the above reasons, it is believed that the rejections should be sustained.

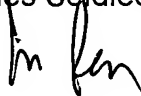
Respectfully submitted,

Irina S. Zemel



Conferees:

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